

## CLAIMS

I Claim:

1        1. A method for performing an alignment self check of a wavelength  
2        meter comprising:  
3                (a) placing a reference signal into a reference signal path of the  
4        wavelength meter;  
5                (b) placing the reference signal into an unknown signal path of the  
6        wavelength meter; and,  
7                (c) detecting whether after traveling through the unknown signal path,  
8        the reference signal has a same period as after traveling through the reference  
9        signal path.

1        2. A method as in claim 1 wherein (c) includes:  
2                sampling values of the reference signal after traveling through the  
3        unknown signal path, based on frequency of the reference signal after traveling  
4        through the reference signal path to determine whether the sampled values are  
5        at constant amplitude.

1        3. A method as in claim 1 additionally comprising:  
2                (d) notifying a user of the wavelength meter when after traveling through  
3        the unknown signal path, the reference signal has a different period than after  
4        traveling through the reference signal path.

1       4. A method as in claim 1 additionally comprising:  
2           (d) performing realignment of the wavelength meter when after traveling  
3       through the unknown signal path, the reference signal has a different period  
4       than after traveling through the reference signal path.

1       5. A method as in claim 1 wherein the wavelength meter includes a  
2       Michelson interferometer.

1       6. A method as in claim 1 additionally comprising:  
2           translating a mirror in both the unknown signal path and in the reference  
3       signal path while detecting whether after traveling through the unknown signal  
4       path, the reference signal has the same period as after traveling through the  
5       reference signal path.

1       7. A wavelength meter comprising:  
2           a reference signal path;  
3           an unknown signal path;  
4           a detector that detects signal activity on the reference signal path and  
5       signal activity on the unknown signal path; and,  
6           an analyzer that determines whether, after traveling through the  
7       unknown signal path, a reference signal has a same period as after traveling  
8       through the reference signal path.

1        8. A wavelength meter as in claim 7 wherein the analyzer checks values  
2        of the reference signal sampled by the detector after traveling through the  
3        unknown signal path, based on frequency of the reference signal after traveling  
4        through the reference signal path, to determine whether the sampled values are  
5        at constant amplitude.

1        9. A wavelength meter as in claim 7 wherein the wavelength meter  
2        notifies a user of the wavelength meter when after traveling through the  
3        unknown signal path, the reference signal has a different period than after  
4        traveling through the reference signal path.

1        10. A wavelength meter as in claim 7 wherein the wavelength meter  
2        performs realignment of the wavelength meter when after traveling through the  
3        unknown signal path, the reference signal has a different period than after  
4        traveling through the reference signal path.

1        11. A wavelength meter as in claim 7 wherein the wavelength meter  
2        includes a Michelson interferometer.

1        12. A wavelength meter as in claim 7 wherein the analyzer checks values  
2        of the reference signal sampled by the detector to determine whether the  
3        sampled values are at constant amplitude.

1        13. A wavelength meter as in claim 7 wherein the wavelength meter  
2        includes a mirror that is translated while the detector detects signal activity on  
3        the reference signal path and signal activity on the unknown signal path.

1        14. A wavelength meter comprising:  
2            reference signal path means for guiding a signal;  
3            unknown signal path means for guiding a signal;  
4            detector means for detecting signal activity on the reference signal path  
5        means and signal activity on the unknown signal path means; and,  
6            analyzer means for determining whether, after traveling through the  
7        unknown signal path means, a reference signal has a same period as after  
8        traveling through the reference signal path means.

1        15. A wavelength meter as in claim 14 wherein the analyzer means  
2        checks values of the reference signal sampled by the detector means after  
3        traveling through the unknown signal path means, based on frequency of the  
4        reference signal after traveling through the reference signal path means, to  
5        determine whether the sampled values are at constant amplitude.

1        16. A wavelength meter as in claim 14 wherein the wavelength meter  
2        notifies a user of the wavelength meter when after traveling through the  
3        unknown signal path means, the reference signal has a different period than  
4        after traveling through the reference signal path means.

1        17. A wavelength meter as in claim 14 wherein the wavelength meter  
2    performs realignment of the wavelength meter when after traveling through the  
3    unknown signal path means, the reference signal has a different period than  
4    after traveling through the reference signal path means.

1        18. A wavelength meter as in claim 14 wherein the wavelength meter  
2    includes a Michelson interferometer.

1        19. A wavelength meter as in claim 14 wherein the analyzer means is also  
2    for checking values of the reference signal sampled by the detector means to  
3    determine whether the sampled values are at constant amplitude.

1        20. A wavelength meter as in claim 14 wherein the wavelength meter  
2    includes a mirror that is translated while the detector means detects signal  
3    activity on the reference signal path means and signal activity on the unknown  
4    signal path means.